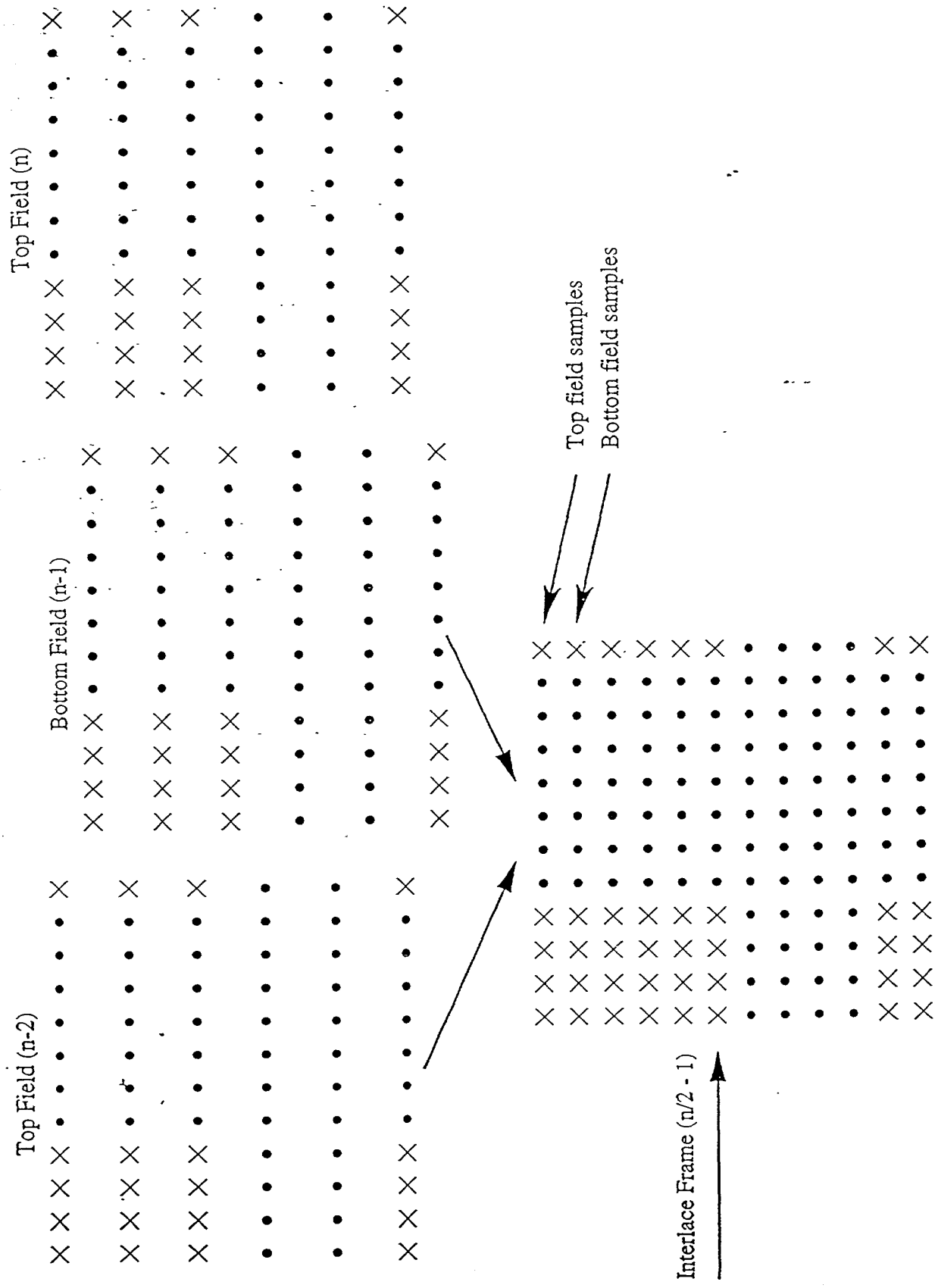
Top Field (n)
Bottom Field (n-1)
Top Field (n-2)
Top field samples
Bottom field samples
Interlace Frame (n/2 - 1)

Figure 1:

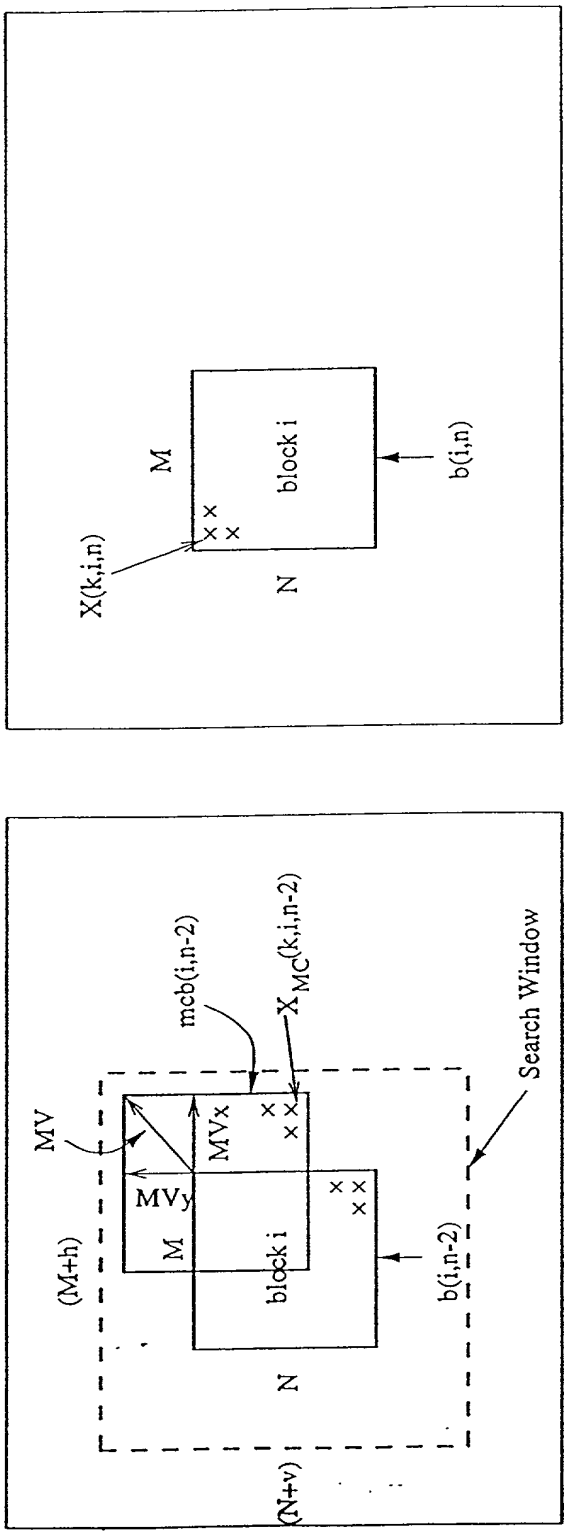
Field (n)
M
block i
b(i,n)
X(k,i,n)
N
Field (n-2)
mcb(i,n-2)
$X_{MC}(k,i,n-2)$
Search Window
MV
MVx
MVy
(M+h)
M
block i
b(i,n-2)
N
(N+v)

Figure 2.

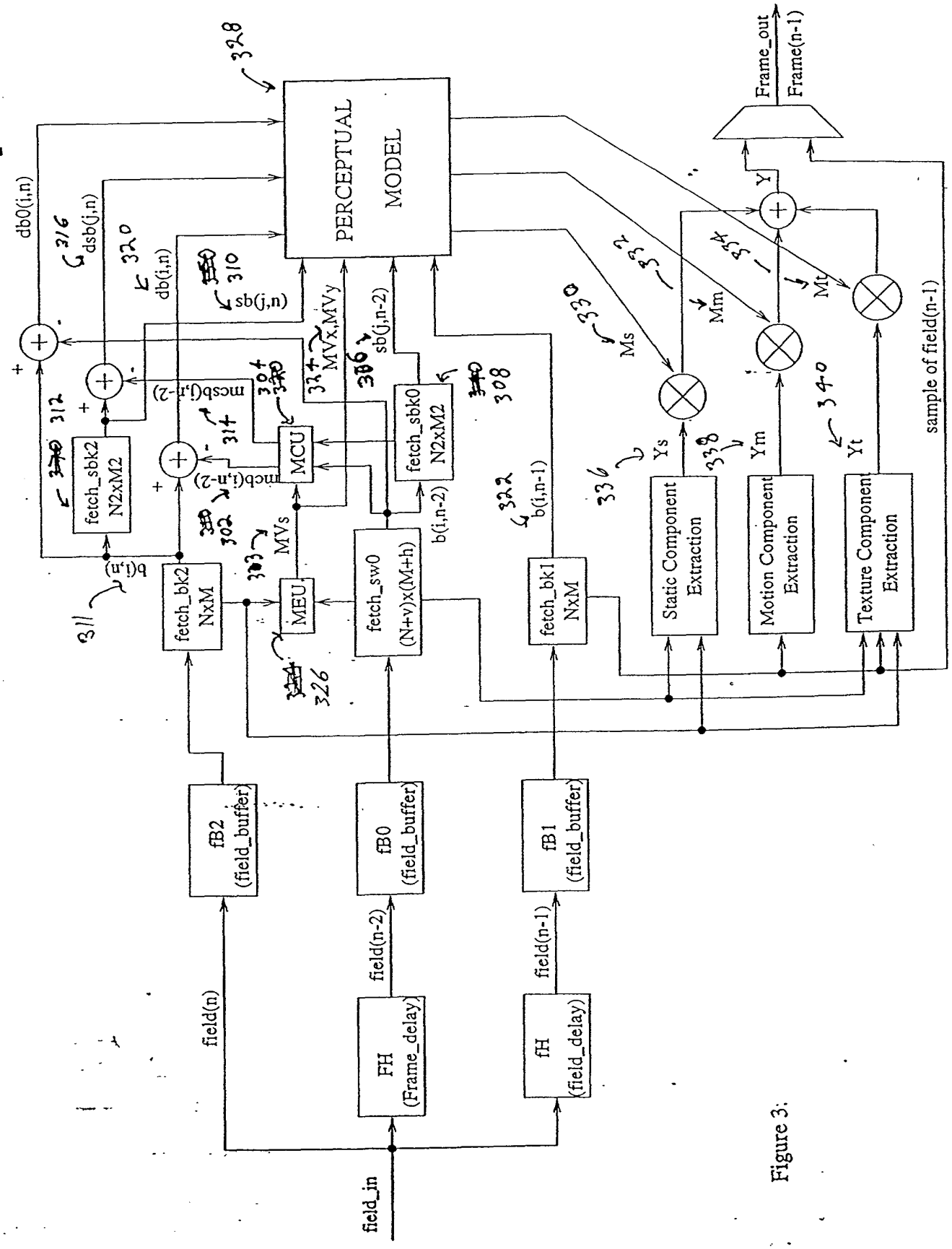
PERCEPTUAL MODEL
328
318
db0(i,n)
316
dsb(j,n)
320
db(i,n)
310
sb(j,n)
MVx,MVy
sb(j,n-2)
fetch_sbk2 N2xM2
fetch_sbk0 N2xM2
mcsb(j,n-2)
mcb(i,n-2)
MCU
MVs
b(i,n-2)
b(i,n-1)
b(i,n)
fetch_bk2 NxM
MEU
fetch_sw0 (N+v)x(M+h)
fetch_bk1 NxM
Ms
Mm
Mt
Ys
Ym
Yt
Y
Static Component Extraction
Motion Component Extraction
Texture Component Extraction
Frame_out
Frame(n-1)
sample of field(n-1)
fB2 (field_buffer)
fB0 (field_buffer)
fB1 (field_buffer)
field(n)
field(n-2)
field(n-1)
FH (Frame_delay)
fH (field_delay)
field_in

Figure 3:

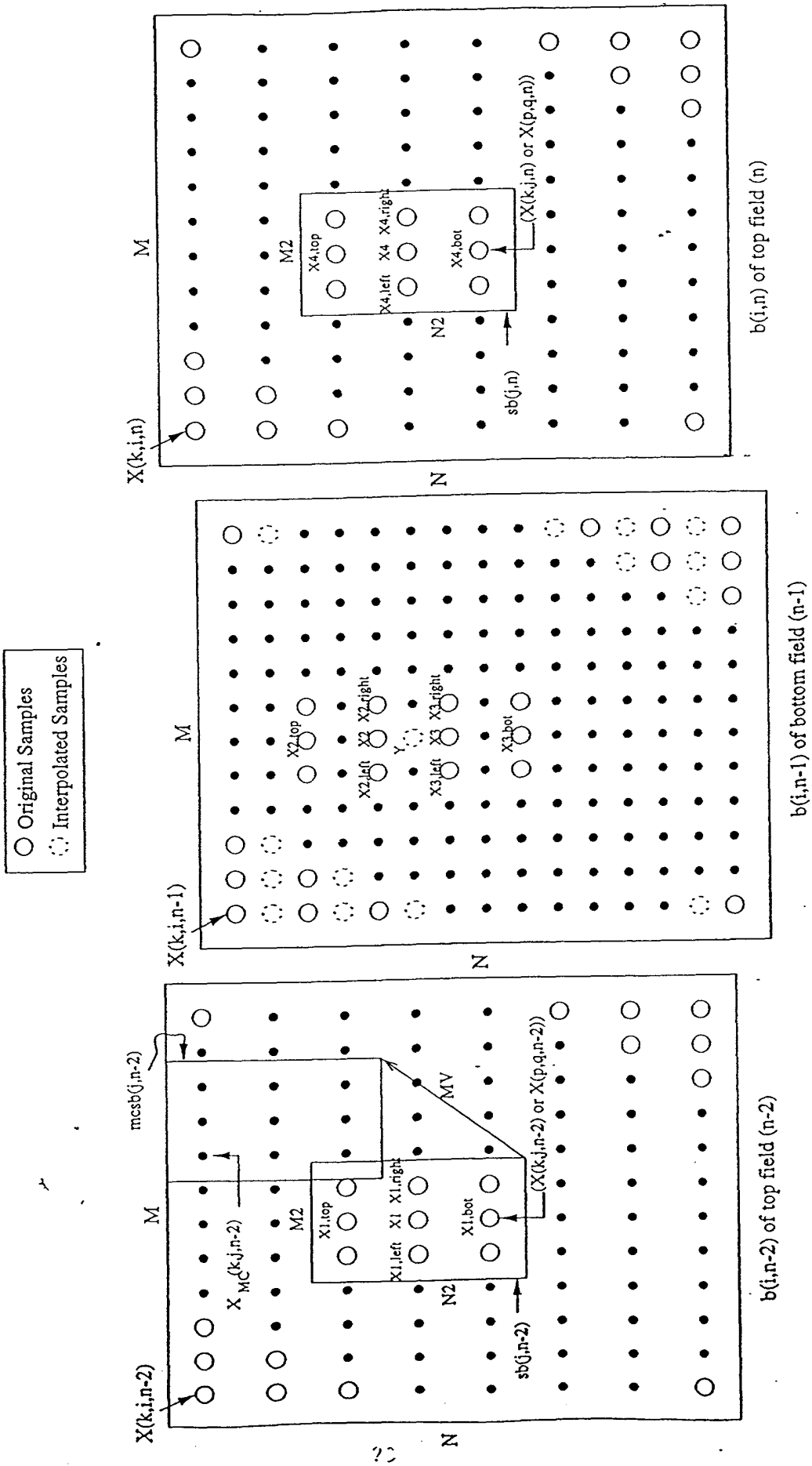
Original Samples
Interpolated Samples
X(k,i,n)
M
N
M2
N2
X4,top
X4,left
X4
X4,right
X4,bot
sb(j,n)
(X(k,j,n) or X(p,q,n))
b(i,n) of top field (n)
X(k,i,n-1)
X2,top
X2,left
X2
X2,right
Y
X3,left
X3
X3,right
X3,bot
b(i,n-1) of bottom field (n-1)
X(k,i,n-2)
mcsb(j,n-2)
MV
X1,top
X1,left
X1
X1,right
X1,bot
sb(j,n-2)
(X(k,j,n-2) or X(p,q,n-2))
b(i,n-2) of top field (n-2)

Figure 4:

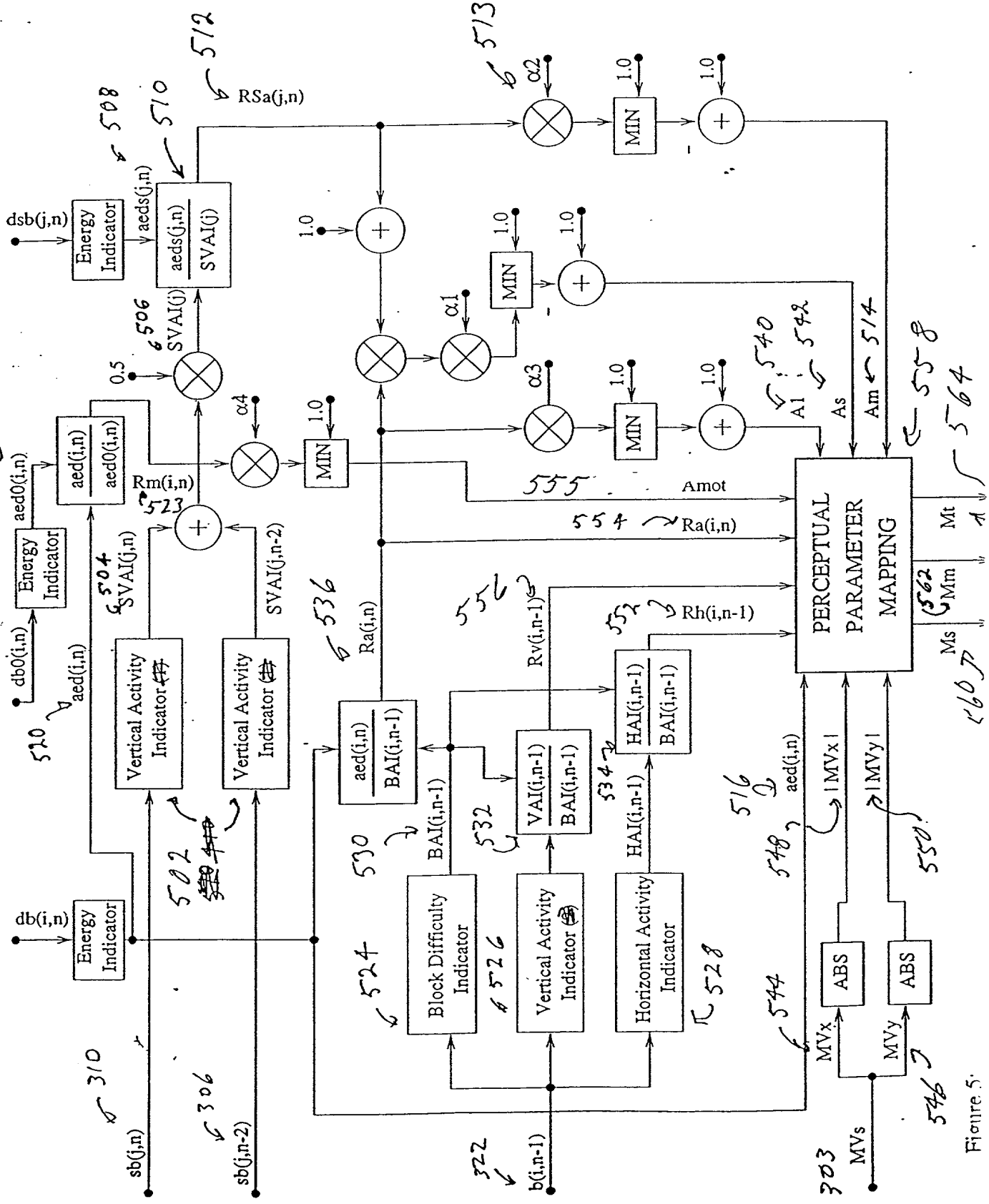
dsb(j,n)
Energy Indicator
aeds(j,n)
aeds(j,n) / SVAI(j)
RSa(j,n)
SVAI(j)
0.5
α1
α2
α3
α4
1.0
MIN
Rm(i,n)
aed(i,n) / aed0(i,n)
aed0(i,n)
db0(i,n)
aed(i,n)
SVAI(j,n)
SVAI(j,n-2)
Vertical Activity Indicator
Ra(i,n)
Rv(i,n-1)
Rh(i,n-1)
aed(i,n) / BAI(i,n-1)
VAI(i,n-1) / BAI(i,n-1)
HAI(i,n-1) / BAI(i,n-1)
BAI(i,n-1)
HAI(i,n-1)
db(i,n)
Block Difficulty Indicator
Vertical Activity Indicator
Horizontal Activity Indicator
sb(j,n)
sb(j,n-2)
b(i,n-1)
aed(i,n)
|MVx|
|MVy|
ABS
MVx
MVy
MVs
A1
As
Am
Amot
PERCEPTUAL PARAMETER MAPPING
Mt
Mm
Ms

Figure 5

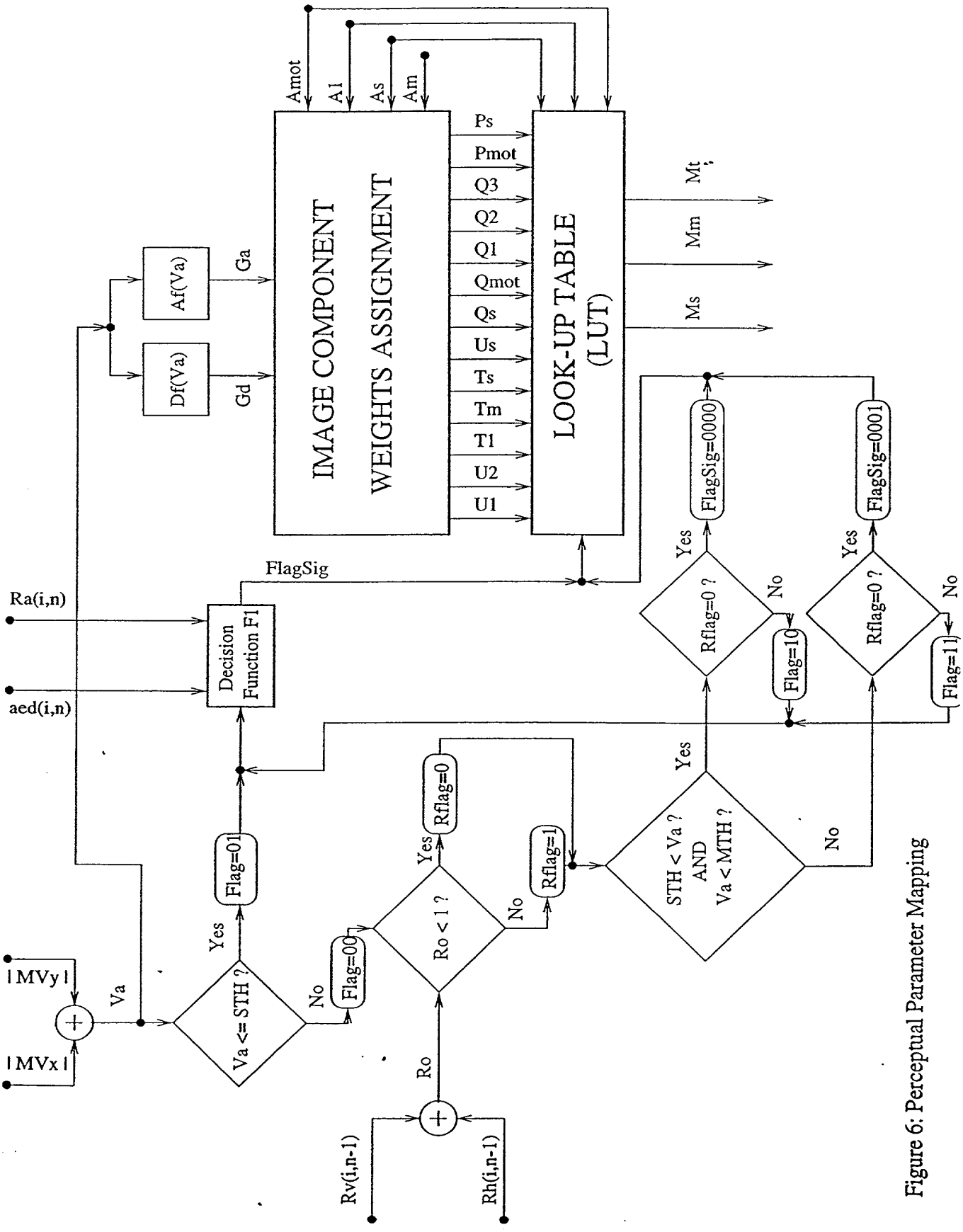

Figure 6: Perceptual Parameter Mapping

FlagSig	Ms	Mm	Mt
0000	0	U2	Ts
0001	0	Q3	Amot
0100	A1	Q1	0
0101	0	Q2	As
0110	Ps	Q2	Qs
1000	T1	U1	0
1001	0	U2	Ts
1010	Tm	U2	Us
1100	Amot	Q3	0
1101	0	Q3	Amot
1110	Pmot	Q3	Qmot

Figure 7: One-to-one mapping between FlagSig and LUT Coefficients

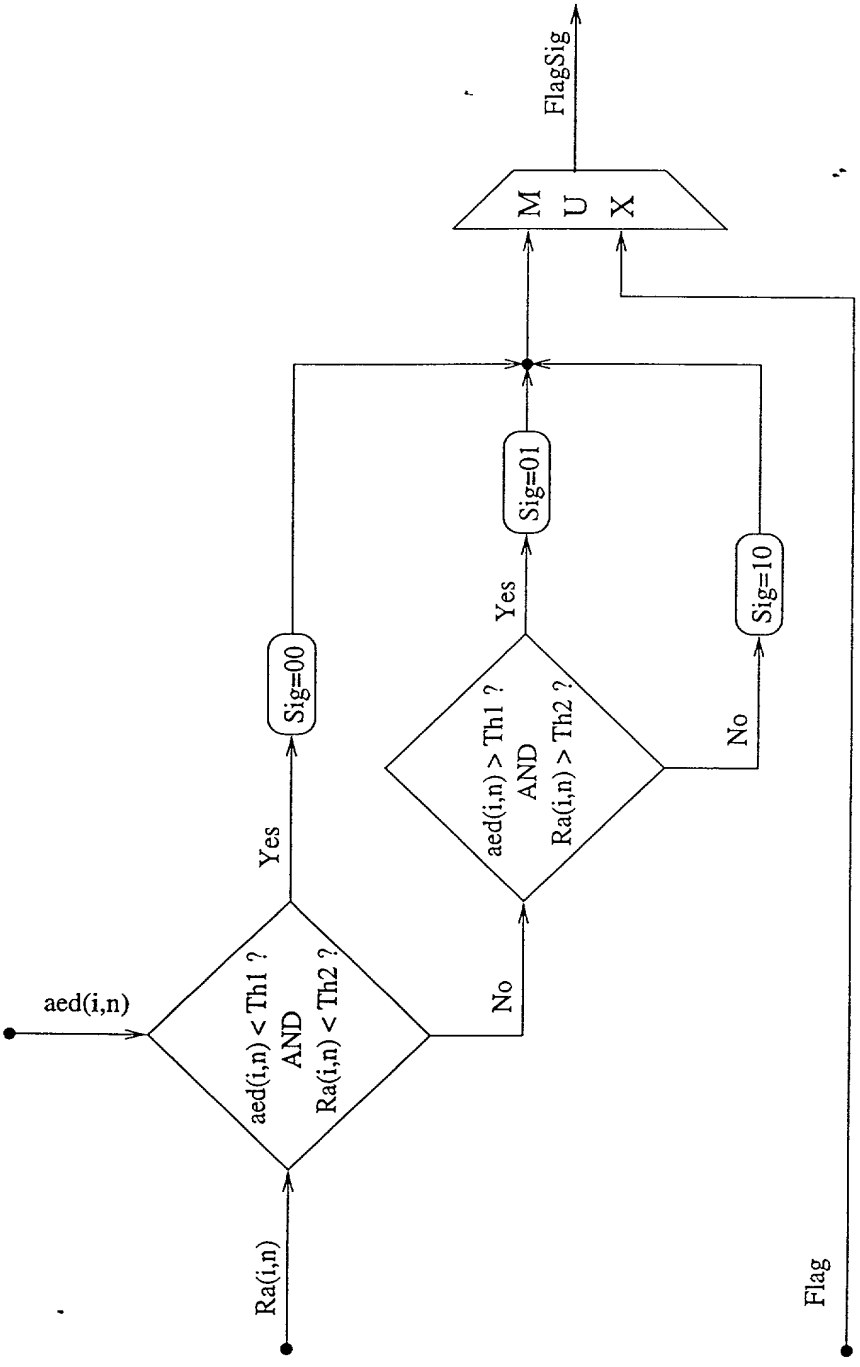

Figure 8: Decision Function F1

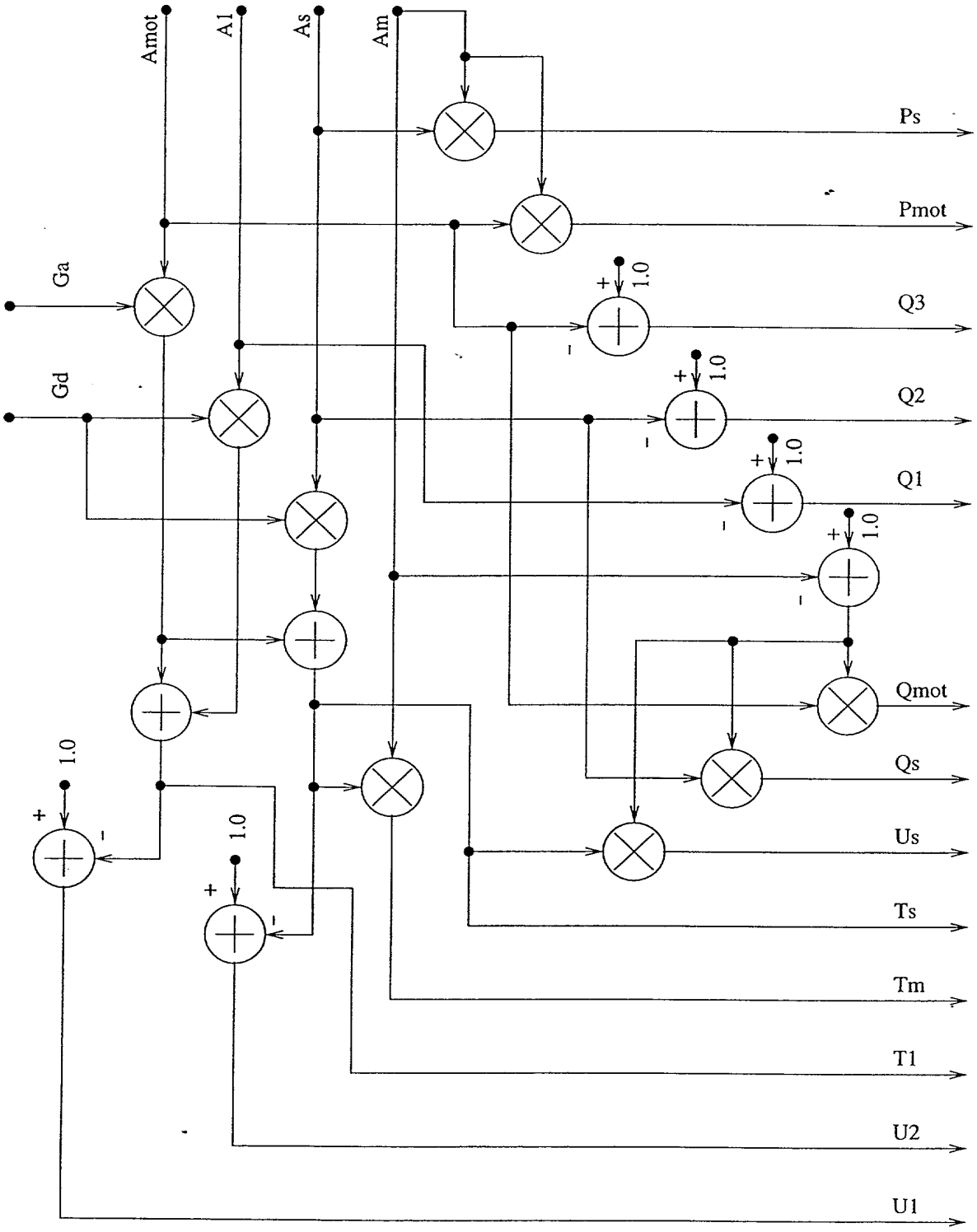

Figure 9: Image Component Weights Assignment